International Journal of Advances in Business and Management Research (IJABMR) https://doi.org/10.62674/ijabmr.2025.v3isupp1.006
https://ejournal.svgacademy.org/index.php/ijabmr/

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COMPARATIVE STUDY OF TECHNOLOGY INTEGRATION AND CHALLENGES IN HIGHER EDUCATION: A CASE STUDY OF THE UK AND INDIA

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Original Article

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Abstract

The technological advancement has made a great stride in Higer Education not only in India but across the globe. The present study has made a comparative analysis of the adoption of technology in higher education in Great Britain and India. While attempting to trace the opportunities and the possible challenges while implementing the technology at higher educational institutions, we have examined the available infrastructure, teaching staff preparedness, level of student engagement and the national government policies and regulations. The study also probes into the barriers on the way to implementing tools in learning and management systems and the resistance from execution staff. The study revealed that institutions in the United Kingdom (UK) are leaning more on technology, while the Indian institutions still face resistance in implementation. The gaps in the process of shift are common for both India and UK while the degree varies. The study also offers suggestions for an effective implementation of the technology in higher education.

Keywords: Blended Learning; Digital Pedagogy; E-learning Platforms; Higher Education; Learning Management Systems (LMS); Technology Integration

Introduction

The year 2021 marked a paradigm shift in academic delivery in higher education with digital learning and management tools playing a vital role. The innovation brought in a plethora of fruits to the teacher as well as the taught. But this also calls for the challenges like access to the technology and affordability for the students of average income levels or from below the poverty line. India, though, boasts of the fourth largest economy in the world [1]. Its per capita indices are far below those of third world countries, unlike in the case of UK where the average disposable income is much higher compared to India, making it easier for the pupil to access the advanced technologies. The present paper makes a comparative analysis of the issues impeding the implementation of the technology integration in the higher education sector. Despite the fact that the UK has established learning infrastructure when compared to India, the concerns are more urgent at times due to the high disposable incomes. The cultural shift among the youth may be a greater challenge when compared to India. India, on the other hand, has a totally different scenario, wherein the teachers are resisting the adoption of the digital learning tools in the teaching enclosures or lecture halls [2]. Many of the teachers who started their careers in the 1980s and 1990s have quit the calling for not being able to grade the assessment papers of the students on a computer screen. Moreover, teaching in India is not a lucrative profession and not attractive to the next generations to take up the teaching profession. In the midst of all the above, how can the interactions between the teachers and students be made engaging, fulfilling and a satisfying job?

Received 3rd June 2025; Revised 16th June 2025; Accepted 24th June 2025

Literature Review

The technology integration in UK higher education focuses on response to rapid digital transformation and global educational shifts. Some of the areas include:

1) The Virtual Learning Environments (VLEs) adaptation, such as Moodle and Blackboard, is widespread across UK universities. These platforms resulted in blended learning, enhanced student engagement, and personalised learning support systems [3].

2) The UK varsities fully implemented online learning models, particularly post-COVID-19 (2021), which leveraged digital tools in maintaining continuity and enhanced the teaching experience [4].

3) Many studies have shown that faculty members not only realise the benefits of technology, but challenges do persist in terms of digital literacy and pedagogical training, wherein the institutional support and professional development are critical to successful integration [5].

4) Technology has improved access to resources and promoted active learning. However, concerns about digital equity and the digital divide persist, particularly affecting students from disadvantaged backgrounds [6].

5) The UK government and higher education bodies have promoted digital transformation through strategies like the EdTech Strategy and Jisc's digital frameworks, encouraging innovation, data analytics, and digital capabilities in teaching and learning [7].

Methodology

This study employs a mixed-methods approach, combining quantitative surveys and qualitative interviews to compare technology integration in higher education between the UK and India. The quantitative phase involved administering a structured online survey to 200 participants, including faculty, students, administrators, and policymakers. The survey assessed key variables such as technology adoption levels, infrastructure quality, training effectiveness, and perceived barriers. Responses were analysed using descriptive statistics and inferential statistics (independent t-tests, chi-square, regression) to identify significant differences between the two countries. Purposive sampling ensured representation across institution types (public/private) and roles. Secondary data from government reports, institutional policies, and academic literature supplemented primary findings.

Problem Statement

Though technology has revolutionised the gamut of activities in higher education institutions in the world, the systems are uneven among the nations due to factors like the socio-economic dynamics, policy guidelines and institutional preparedness, funding of the Ed-Tech platforms or tools, etc. Hence, we attempted to address the following:

- The level of Technology integration
- Challenges prevailing in both the countries
- Lesions to be learnt from each other.

Objectives of the Study

- To evaluate the current level of technology integration in selected higher education institutions in the UK and India.
- To identify infrastructural, institutional, regulatory and human resource challenges affecting technology adoption.

Hypothesis

- H_1: UK institutions have higher technology integration levels than Indian institutions.
- H_2: Infrastructure gaps significantly hinder technology adoption in India compared to the UK.
- H_3: Faculty training programs positively influence technology adoption in both countries.

Evolution of Sustainable Finance (refer to Table 1)

Table 1: Evolution of Sustainable Finance

Timeline	Evolution of sustainable finance
1960's-1970's	Ethical investing
1980's-1990's	CSR
1990's-2000	GRI
2000-2010	UN principles for responsible investment Green bonds SDG'S
2020-beyond	ESG Integration Regulatory changes Innovation in Sustainable finance instruments

Source: Collected by Author

Result and Discussion

The data is analysed using inferential and descriptive statistical analyses to compare technology integration in higher education between the UK and India.

The analysis of 32 comments on the subject of technology integration in higher education may have the most important ideas expressed repeatedly. The most serious problem pointed out by approximately 40.6% of the people was the necessity of continuous training for educators and learners. The addressees, who were mostly hesitant in handling digital tools, called for ongoing training programmes that target the latest AI and adaptive learning platforms, as this would be beneficial for all and they would know how it can be done the best [9]. The other part of the research, which was the need for infrastructure and access, was also an important aspect of the survey. Nearly one-third of all the respondents referred to the subject of the necessity of learning spaces, which are the circles to be updated, the internet that has not to end, and the number of devices that are new. This issue is linked to the problem of the digital divide; whereby different levels of access illustrate that tech tools are an essential part of learning [10]. Absent a suitable ground, even the most attractive training measures wouldn't be apt to bring about change in the desired manner. Furthermore, 28.1% of the social media platform users mentioned blended learning & AI as aspects of the positive change [1]. The convenience of personalised learning experiences, the enjoyment of using real-time feedback tools, and digital collaboration tools like Google Docs for improved student engagement and academic performance were the most noted suggestions. Such a change shows AI and adaptive tech's potential to alter traditional teaching methods [11].

Another area, as brought out by 25 per cent of those that responded, was policy development. They proposed creating precise strategies for digital integration, e.g., guiding electronic waste management, cyber security assurances, and long-term technology use planning. These regulations are obligatory for those who wish to legitimately adopt new technologies [12, 13].

One thing that comes out clearly is that despite the majority who were pro-tech integration, 19 per cent of the respondents shared their fears of technology. They underlined the urgency of having a suitable mix and that technology should only

support and not replace face-to-face communication. This way, the human side of education will remain while the advantages of digital tools will be exploited [14, 15].

Also, 18.8 per cent of those who participated in the study emphasised that cultural resistance is the main challenge. Even with the right tools, there still are some who are not in line with technology and who are resistant to change due to fear or ignorance [16]. The group suggested awareness-raising activities and the promotion of the innovative culture in schools as some of the activities to be conducted [17]. While there is clear evidence that the academic community is solidly behind the concept of tech integration into the learning process, it is also clear that to ensure its success, there is a need for continuous training, good infrastructure, and measures that accommodate people's concerns regarding change [18].

Descriptive Statistics (see Tables 2-6 below)

- **Technology Integration by Country**

Table 2: Technology Integration by Country

Integration Level	UK (%)	India (%)
Fully Integrated	40%	15%
Moderately Integrated	50%	60%
Limited Integration	10%	25%

Source: Collected by Author

UK institutions report higher full integration (40% vs. 15%), while India struggles with limited adoption (25%).

- **Infrastructure Quality**

Table 3: Infrastructure Quality

Rating	UK (%)	India (%)
Excellent	35%	10%
Good	45%	40%
Average/Poor	20%	50%

Source: Collected by Author

50% of Indian respondents rate infrastructure as "Average/Poor" vs. 20% in the UK.

- **Training Effectiveness**

Table 4: Training Effectiveness

Perception	UK (%)	India (%)
Very Effective	**30%**	**10%**
Effective/Neutral	**60%**	**50%**
Ineffective	**10%**	**40%**

Source: Collected by Author

40% of Indian faculty/students find training ineffective vs. 10% in the UK.

Inferential Statistics

- **Hypothesis Testing (t-Test for Mean Differences)**
  - H_1: UK has higher technology integration (Confirmed: $p < 0.05$).
  - H_2: Infrastructure gaps hinder India more (Confirmed: $p < 0.01$).
  - H_3: Training effectiveness impacts adoption (Confirmed: $p < 0.05$).

- **Chi-Square Test for Categorical Variables**

Table 5: Chi-Square Test for Categorical Variables

Variable	χ^2 Value	*p*-value	Conclusion
Integration Level × Country	12.34	0.002	Significant
Infrastructure × Country	18.72	<0.001	Significant

Source: Collected by Author

Significant disparities exist between the UK and India in integration and infrastructure.

- **Regression Analysis**
  Dependent Variable: Technology Integration Level
  Predictors: Infrastructure, Training, Policy Support

Table 6: Regression Analysis

Factor	Coefficient	*p*-value
Infrastructure	0.45	0.001
Training Quality	0.32	0.012
Policy Support	0.28	0.021

Source: Collected by Author

Conclusion

To sum up, the comparative study has clearly identified differences in technology integration in the two systems of higher education in the UK and India. The UK has clearly a high level of technology adoption, while India has challenges, particularly in developing the technology infrastructure and policy makeup. This study has highlighted some of the fundamental principles that are essential for effective technology integration and implementation, such as good digital infrastructure, good training and staff development programmes and policies that support educators. In particular, it is important for both countries; while the UK aims to improve and manage issues around cybersecurity and AI and related advances in personalised learning, India needs to ensure that it can address the urban-rural digital divide through deliberate policy initiatives and investments that support transformative educational change. There are huge opportunities in both countries for cross-national collaboration and engagement that will afford opportunities for shared and mutual learning and growth. If the aforementioned challenges are resolved and the suggested interventions enacted, this will lead to improved, equitable, accessible and future-focused education systems in both countries and ultimately transform the teaching and learning experience in a digital world.

Acknowledgement
The author acknowledges anonymous reviewers for their insights, which significantly enhanced the quality of the study.

Conflict of Interest
This research did not receive any funding, which may have derived advantages from the results. There is no sponsorship that played a part in the study's design, data collection, analysis, or publication decisions.

References

1. Sreelatha G, Atmakuri R. Role of ICT and Multi-Disciplinary Approaches to Enhance Quality Education in India to Implicate Business Creations. International Journal of Advances in Business and Management Research (IJABMR). 2024 Sep 12;2(1):1-8. https://doi.org/10.62674/ijabmr.2024.v2i01.001

2. Wall T, Ngo N, Nguyễn Hữu C, Lan PN, Knight S. Organisational digital capability: a cross-country review of guidance. Higher Education, Skills and Work-based Learning. 2024 Jun 4;14(3):711-22. https://doi.org/10.1108/HESWBL-06-2023-0157

3. Walker R, Morrison C, Beltman S, Morey V. Graduate perspectives of work integrated learning in fully online initial teacher education: A global imperative. Teacher education in globalised times: Local responses in action. 2020:273-93. https://doi.org/10.1007/978-981-15-4124-7_15

4. Khan MA. The impact of COVID-19 on UK higher education students: experiences, observations and suggestions for the way forward. Corporate Governance: The International Journal of Business in Society. 2021 Sep 22;21(6):1172-93. https://doi.org/10.1108/CG-09-2020-0396

5. Kirkwood A, Price L. Technology-enhanced learning and teaching in higher education: what is 'enhanced' and how do we know? A critical literature review. Learning, media and technology. 2014 Jan 2;39(1):6-36. https://doi.org/10.1080/17439884.2013.770404

6. Office for Students (OfS). 'Digital poverty' risks leaving students behind – Office for Students [Internet]. Office for Students; 2020 [cited 2025 Mar 21]. Retrieved from: https://www.officeforstudents.org.uk/

7. Des Raux HDPG. The EdTech Strategy UK and Special Educational Needs [Internet]. UCL Centre for Inclusive Education Blog; 2021 Aug 5 [cited 2024 Jul 11]. Retrieved from: https://blogs.ucl.ac.uk/cdld/2021/08/05/the-edtech-strategy-uk-and-special-educational-needs/

8. Ashritha P, Reddy PS. Impact of Artificial Intelligence on Management Decision-Making. International Journal of Advances in Business and Management Research (IJABMR). 2023 Dec 12;1(2):10-8. https://doi.org/10.62674/ijabmr.2024.v1i02.002

9. Government of India. National Education Policy (NEP) 2020 [Internet]. New Delhi: Ministry of Education; 2020 [cited 2024 Jun 14]. Retrieved from: https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

10. Joint Information Systems Committee. Building digital capabilities framework: the six elements defined [Internet]. 2022. Retrieved from: https://digitalcapability.jiscinvolve.org/wp/files/2015/06/1.-Digital-capabilities-6-elements.pdf

11. Schleicher A. The Impact of COVID-19 on Education: Insights from "Education at a Glance 2020" [Internet]. OECD Publishing; 2020 [cited 2024 May 11]. Retrieved from: https://eric.ed.gov/?id=ED616315

12. Thomson S. Digital Teaching and Learning Review - OfS [Internet]. University of Manchester; [cited 2023 Jan 4]. Retrieved from: https://research.manchester.ac.uk/en/clippings/digital-teaching-and-learning-review-ofs

13. Selwyn N. Education and technology: Key issues and debates. London: Bloomsbury Publishing; 2021 Nov 18.

14. Shukla V. Challenges and Opportunities of Higher Education in India. ldealistic Journal of Advanced Research in Progressive Spectrums (IJARPS) eISSN–2583-6986. 2025 Jun 30;4(06):1-6.

15. Bansal A, Pophalkar S, Vidani C. A review of ed-tech sector in India. International Journal of Management Analytics (IJMA). 2023;1(1):63-84. https://doi.org/10.59890/ijma.v1i1.102

16. Telecom Regulatory Authority of India. *Annual Report 2022-2023*. Retrieved from: https://www.trai.gov.in/sites/default/files/2024-10/Annual_Report_20022024_0_0.pdf

17. Zhou X, Fang L, Rajaram K. Exploring the digital divide among students of diverse demographic backgrounds: A survey of UK undergraduates. Journal of Applied Learning and Teaching. 2025 Feb 11;8(1):228-43. http://dx.doi.org/10.37074/jalt.2025.8.1.22

18. Antoninis M, Alcott B, Al Hadheri S, April D, Fouad Barakat B, Barrios Rivera M, Baskakova Y, Barry M, Bekkouche Y, Caro Vasquez D, D'Addio AC. Global Education Monitoring Report 2023: Technology in education: A tool on whose terms?. https://doi.org/10.54676/UZQV8501